

a hinge axis between said first and second side; and

a dispensing and mixing head having two or more valves connected separately with said discharge ports whereby said ~~viscous material~~ components enter said dispensing and mixing head via the action of said pumps upon actuation of said dispensing and mixing head and are mixed and exit said dispensing and mixing head at an open end as a viscous blend; and

one or more recirculating valves, each connected with a fitting between said head and said discharge port and further connected with one or more of said holding tanks whereby when said recirculating valve is open recirculation into said holding tanks occurs and when said recirculating valve is closed, said dispensing or mixing head is pressurized and ready for use.

2.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy ~~viscous material~~ as set forth in claim 1, said pumps each further comprising:

a cylinder and piston combination of substantially equal diameter, said piston having an attached connecting rod and a connecting rod external end extending external to said cylinder; and

one or more intake check valves positioned to allow said resin or hardener to enter said cylinder through said intake port when said piston retracts away from said intake port; and

one or more piston check valves positioned with said piston to allow said resin or hardener to flow through said piston and into said cylinder where said connecting rod attaches with said piston when said piston is forced toward said intake port; and

~~in said combination~~, said one or more check valves having a spring biasing said check valves against a valve seat, whereby said valve is positively closed when said resin or hardener ~~viscous material~~ is not flowing through said valve seat.

3.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy ~~viscous material~~ as set forth in claim 2 said pumps each further comprising:

~~one of said piston~~ check valves further positioned within said piston and ~~one of said intake~~ check valves further positioned within said intake port, whereby said piston check valve within said piston opens as said piston moves toward said intake port and said piston check valve within said piston closes as said piston moves away from said intake port and said intake check valve within said

intake port opens as said piston moves away from said intake port and said intake check valve within said intake port closes as said piston moves toward said intake port, whereby said resin or hardener ~~viscous material~~ flows from said discharge port upon movement of said piston in either direction.

4.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy ~~viscous material~~ as set forth in claim 1 3 further comprising:

~~said pumps having a cylinder and piston combination,~~ said piston having an attached connecting rod and a connecting rod external end extending external to said cylinder; and

~~a hinged plate having a first side and a second side and a pivotably held hinge axis between said first and second side; and~~

a said hydraulic drive cylinder having a displacement  $d_1$  and connected with said first side a distance  $L_1$  from said hinge axis; and

~~said~~ one or more of said pumps ~~each~~ slideably placed and secured upon said second side a distance  $L_2$  from said hinge axis, whereby displacement  $d_1$  of said drive causes connecting rod displacement  $d_2$  substantially in a ratio:

$$d_2 = \frac{d_1}{L_1} * L_2$$

5.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy ~~viscous material~~ as set forth in claim 4 said drive further comprising:

a said hydraulic cylinder having an extension rod pivotably connected with said first side; and

one or more limit switches mounted near said hinged plate and capable of sensing one or more positions of said hinged plate; and

a hydraulic valve actuated by said limit switches whereby a hydraulic fluid flows into a first portion and out of a second portion of said hydraulic cylinder thereby causing said extension rod to extend and when directed by said limit switches allows said hydraulic fluid to flow out of a first portion and into a second portion of said hydraulic cylinder thereby causing said extension rod to retract.

6.(cancelled)

7.(cancelled)

8.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy viscous material as set forth in claim 1, one or more of said holding tanks further comprising:  
one or more auger feeds positioned within said tanks in such a manner as to promote feeding of said viscous material into said exiting port.

9.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy viscous material as set forth in claim ~~1~~8, one or more of said holding tanks further comprising:

said one or more cavities within a base and substantially surrounding each of said holding tanks and having a said heat transferring liquid attached with one or more of said tanks; and a said heating element positioned near or within said cavity whereby heat is transferred to said heat transferring liquid and thereby uniformly heats said viscous material.

10.(cancelled) The apparatus for mixing and injecting or applying a two or more part epoxy viscous material as set forth in claim 9, ~~one or more of said holding tanks~~ said dispensing and mixing head further comprising:

~~one or more auger feeds positioned within said tanks in such a manner as to promote feeding of said viscous material into said exiting port.~~

two or more pin type compound valves connected with a valve actuator; and  
a valving block having two or more viscous compound entrance holes and two or more bores,  
said compound valves slidably engaged and sealed with said bores; and  
a mixing block having two or more compound chambers respectively sealingly engaged with said bores and two or more mixture exiting holes; and  
a static mixing chamber sealingly engaged with said mixture exiting holes and having said open end whereby said viscous blend exits said dispensing and mixing head when said valve actuator

opens said compound valves.

11.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy ~~viscous material~~ as set forth in claim 1, said dispensing and mixing head further comprising:  
two or more pin type compound valves connected with a valve actuator; and  
a valving block having two or more viscous compound entrance holes and two or more bores, said compound valves slidably engaged and sealed with said bores; and  
a mixing block having two or more compound chambers respectively sealingly engaged with said bores and two or more mixture exiting holes; and  
a static mixing chamber sealingly engaged with said mixture exiting holes and having said open end whereby said viscous blend exits said dispensing and mixing head when said valve actuator opens said compound valves.

12.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy ~~viscous material~~ as set forth in claim ~~1~~10, said dispensing and mixing head further comprising:

an air spray nozzle mounted on said dispensing and mixing head; and  
a compressed air supply and an air valve connected between said compressed air supply and said air spray nozzle, whereby a compressed air spray is provided upon actuation of said air valve.

13.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy ~~viscous material~~ as set forth in claim ~~1~~10, said dispensing and mixing head further comprising:

a seal plate between said valving block and said mixing block and having two or more recesses and two or more O-rings within said recesses and two or more passages communicating with said bores and said compound chambers respectively; and  
said mixing chamber further comprising a static mixer.

14.(currently amended) The apparatus for mixing and injecting or applying a two or more part

epoxy viscous material as set forth in claim 4 further comprising:

two or more slots on said second side of said hinged plate and two or more clevis's moveably attached with each of said slots respectively and each of said connecting rod external ends connected with one of said clevis's whereby said one or more pumps are each slideably placed and secured upon said second side and allow for variable ratio synchronous pumping.

15.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy viscous material as set forth in claim ~~1~~ 10 further comprising:

a carriage upon which said two or more holding tanks and said two or more synchronously coupled pumps are mounted; and

one or more raisable and lowerable terrain drives mounted with said carriage; and

one or more rail followers mounted with said carriage whereby said carriage is driven by said terrain drive when lowered and said rail followers cause said carriage to follow one or more railroad rails.

16.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy viscous material as set forth in claim 4 further comprising:

a hinged cradle having two or more pump rings and mounting brackets; and

said cylinders attached with said pump rings and said pump rings pivotably attached with said mounting brackets; and

said connecting rod external ends slideably connected with said second side of said hinged plate.

17.(currently amended) An apparatus for mixing and injecting or applying a two or more part epoxy viscous material comprising:

two or more synchronously coupled pumps capable of pumping a viscous material each having an intake port capable of suction feeding said material and a discharge port; and

a hinged plate having a first side, a second side, and a hinge axis between said first and second side, said pumps slideably connected with said second side; and

said pumps comprising a cylinder and piston combination having substantially equal diameter and capable of positive pumping through said discharge port on both an extension and a reflex stroke, said piston having an attached connecting rod and a connecting rod external end extending external to said cylinder; and

two or more check valves in said combination, said two or more check valves having a spring biasing said check valves against a valve seat, whereby said valve is positively closed when said viscous material is not flowing through said valve seat; and

one of said check valves located within said piston and one of said check valves located within said intake port, whereby said check valve within said piston opens as said piston moves toward said intake port and said valve within said piston closes as said piston moves away from said intake port and said check valve within said intake port opens as said piston moves away from said intake port and said valve within said intake port closes as said piston moves toward said intake port, whereby said viscous material flows into said intake port and out said discharge port upon movement of said piston in either direction: ; and

a dispensing and mixing head having two or more valves connected separately with said discharge ports whereby said viscous material components enter said dispensing and mixing head via the action of said pumps upon actuation of said dispensing and mixing head and are mixed and exit said dispensing and mixing head at an open end as a viscous blend; and

one or more recirculating valves, each connected with a fitting between said head and said discharge port whereby when said recirculating valve is closed, said dispensing or mixing head is pressurized and ready for use.

18.(currently amended)       The apparatus for mixing and injecting or applying a two or more part epoxy viscous material as set forth in claim 17 further comprising:

two or more holding tanks each having said viscous material components and an exiting port connected with said intake ports of said pumps respectively and one or more cavities having a heat transferring liquid and one or more heating elements with said liquid, said heating elements capable of uniformly heating said viscous material to a temperature whereby viscosity is reduced yet said temperature is below a self hardening temperature; and

~~a dispensing and mixing head connected with said discharge ports whereby said viscous material components enter said dispensing and mixing head via the action of said pumps upon actuation of said dispensing and mixing head and are mixed and exit said dispensing and mixing head at an open end as a viscous blend.~~

said one or more recirculating valves, each further connected with one or more of said holding tanks whereby when said recirculating valve is open recirculation into said holding tanks occurs.

19.(currently amended) An apparatus for mixing and injecting or applying a two or more part epoxy viscous material comprising:

two or more holding tanks each having a viscous component and an exiting port and one or more auger feeds positioned within said tanks in such a manner as to promote feeding of said viscous component into said exiting port and one or more cavities substantially surrounding each of said tanks and having a heat transferring liquid and one or more heating elements whereby heat is transferred to said heat transferring liquid and thereby uniformly heats said viscous material; and

two or more synchronously coupled pumps driven by one or more drives, each having an adjustable variable ratio of pumping displacement relative to the other pumps, and each pump having an intake port capable of suction feeding said material from said tanks and a discharge port, each intake port connected with one of said holding tank exiting ports; and

said pumps each further comprising a cylinder and piston combination of substantially equal diameter, said piston having an attached connecting rod and a connecting rod external end extending external to said cylinder and a first normally biased spring loaded closed check valve within said piston and a second normally biased spring loaded closed check valve within said intake port, whereby said check valve within said piston opens as said piston moves toward said intake port and said check valve within said piston closes under said bias as said piston moves away from said intake port and said check valve within said intake port opens as said piston moves away from said intake port and said check valve within said intake port closes under said bias as said piston moves toward said intake port, whereby said viscous material flows from said discharge port upon movement of said piston in either direction: ; and

a dispensing and mixing head connected with said discharge ports whereby said viscous material components enter said dispensing and mixing head via the action of said pumps upon actuation of said dispensing and mixing head and are mixed via a static mixer and exit said dispensing and mixing head at an open end as a viscous blend-; and

one or more recirculating valves, each connected with a fitting between said head and said discharge port and further connected with one or more of said holding tanks whereby when said recirculating valve is open recirculation into said holding tanks occurs and when said recirculating valve is closed, said dispensing or mixing head is pressurized and ready for use.

20.(currently amended) The apparatus for mixing and injecting or applying a two or more part epoxy viscous material as set forth in claim 19, said dispensing and mixing head further comprising:

two or more pin type compound valves connected with a valve actuator; and

a valving block having two or more viscous compound entrance holes and two or more bores, said compound valves slidably engaged and sealed with said bores; and

a mixing block having two or more compound chambers respectively sealingly engaged with said bores, ~~and~~ said compound valves extending into said compound chambers when closed, and two or more mixture exiting holes; and

a said static mixer sealingly engaged with said mixture exiting holes and having said open end whereby said viscous material enters said compound entrance holes upon opening of said compound valves flows into said compound chambers and through said mixture exiting holes and into said static mixer and thereafter exits said dispensing and mixing head as a viscous material blend.